What Is Claimed Is:

1. A finger unit for a robot hand comprising:

a mounting flange,

an actuator attached to the mounting flange,

a rotational output shaft of the actuator that passes through the mounting flange and projects in the forward direction,

a drive-side bevel gear coaxially fixed to a tip portion of the rotational output shaft,

a pair of bearing housings that extends in a forward direction away from a front surface of the mounting flange through positions on both sides of the drive-side bevel gear,

bearings mounted in the bearing housings,

a joint shaft rotatably supported at both ends by the bearings, and aligned in a direction perpendicular to a center axis line of the rotational output shaft of the actuator,

a driven-side bevel gear coaxially fixed on an external peripheral surface of the joint shaft, and engaged with the drive-side bevel gear,

a connecting member having one end fixed to the joint shaft, and extending in the direction perpendicular to the joint shaft, and

a finger main body connected to a tip portion of the connecting member.

2. The finger unit for a robot hand according to claim 1, wherein a spring plate is mounted on an external end surface of the bearings to restrict the axial bias of the driven-side bevel gear fixed to the joint shaft.

3. The finger unit for a robot hand according to claim 1 or 2, wherein a strain gauge is mounted on a side surface of the connecting member to detect torque transmitted through the connecting member.

4. The finger unit for a robot hand according to claim 1, 2, or 3, wherein the joint shaft is a hollow shaft comprising a hollow portion for wiring.

5. The finger unit for a robot hand according to any of claims 1 to 4, comprising:

a second connecting member connected to a tip portion of the finger main body,

a second actuator coaxially mounted on the second connecting member, and housed in the hollow finger main body,

a second drive-side bevel gear coaxially fixed to a tip portion of a rotational output shaft of the second actuator,

a pair of second bearing housings that are formed on the second connecting member and are extended in the forward direction through positions on both sides of the second drive-side bevel gear,

second bearings mounted in the second bearing housings,

a second joint shaft rotatably supported at both ends by the second bearings, and aligned in a direction perpendicular to a center axis line of the rotational output shaft of the second actuator,

a second driven-side bevel gear coaxially fixed on an external peripheral surface of the second joint shaft, and engaged with the second drive-side bevel gear,

a third connecting member having one end is fixed to the second joint shaft, and extending in the direction perpendicular to the second joint shaft, and

a second finger main body connected to a tip portion of the third connecting member.